A STUDY OF FIBRONECTIN IN MALNOURISHED CHILDREN

Thesis Submitted for Partial Fullfilment of M.S. Degree in Pediatrics

By

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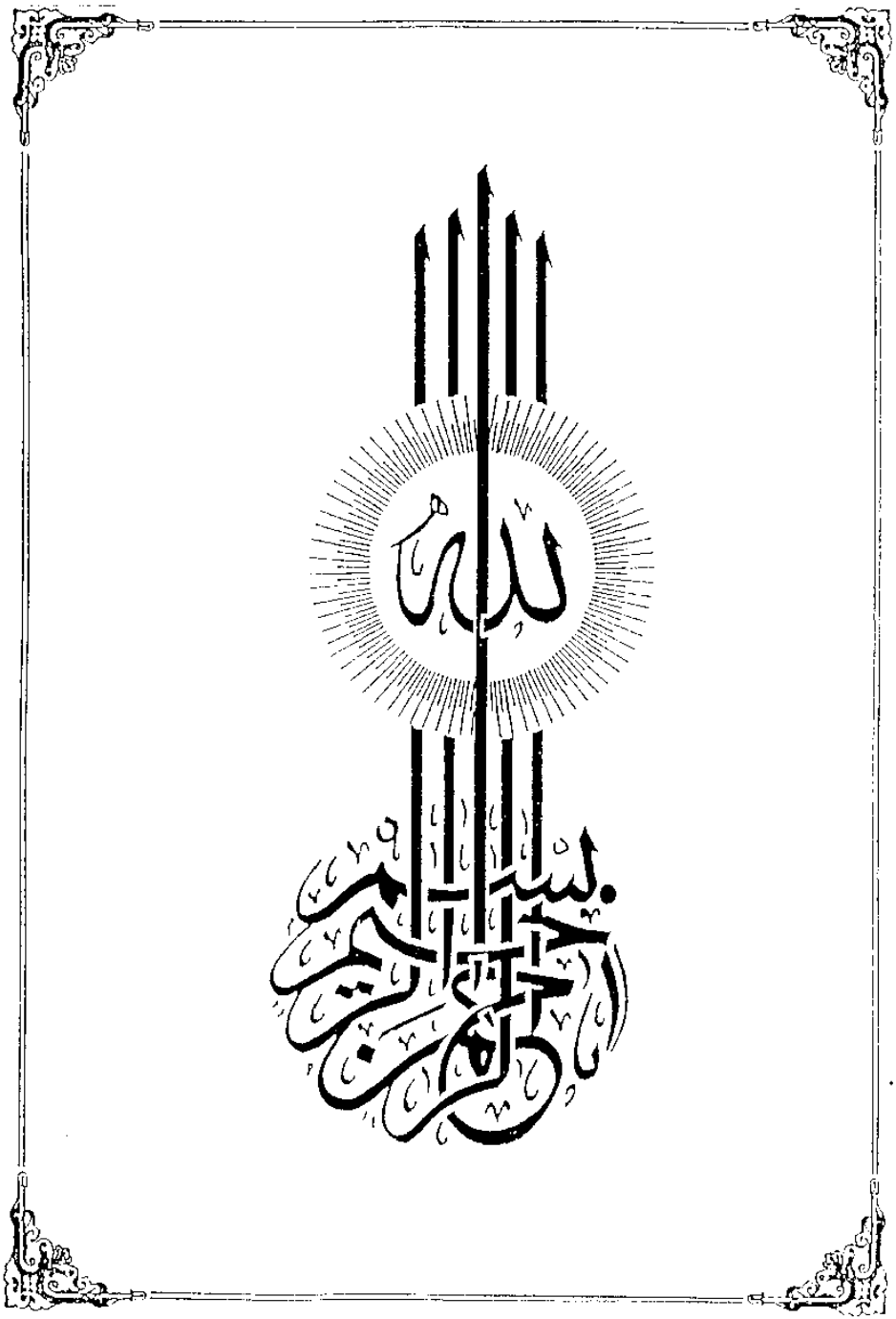
قالوا

سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللهُ الْعَظِيمُ

سورة البقرة (الآية ٣٢)



TO MY MOTHER

and

MY HUSBAND

ACKNOWLEDGEMENT

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CONTENTS

LIST OF ABBREVIATIONS

S. aureus	:	*Staphylococcus aureus.*
LETS	:	*Large external transformation sensitive protein.*
SF-antigen	:	*Soluble fibroblast antigen*
CSP	:	*Cell surface protein.*
CAF	:	*Cell adhesion factor*
CIg	:	*Cold insoluble globulin*
PCA	:	*Pyrrolidone carboxylic acid*
HEP	:	*Heparin*
SH	:	*Sulfhydryl groups*
CHO	:	*Carbohydrate groups*
XL	:	*Cross linking*
S-S	:	*Disulfide bridging*
FGF	:	*Fibroblasts growth factor*
RES	:	*Reticulo-endothelial system*
RDS	:	*Respiratory distress syndrome*
BMRTC	:	*Bone metastasising renal tumour of childhood.*
PEM	:	*Protein energy malnutrition*
TPN	:	*Total parenteral nutrition*
PCM	:	*Protein calorie malnutrition*
m	:	*Months*
F	:	*Female*
M	:	*Male*
IgG	:	*Immunoglobulin G*
L.C. partigen	:	*Low concentration partigen*

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INTRODUCTION

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Plasma proteins can serve as indicators of nutritional status e.g. Albumin and transferrin. more recently retinol binding protein and thyroxin binding pre-albumin have been considered as markers for subclinical protein calorie malnutrition.

A characteristic of these proteins is that their half lives [time during which radioactivity or other property of subst. falls to half its original value] are less than 2 days. Fibronectin falls within this group with its recent characterization and half life estimation of 15-20 h.

Studies have shown that even with minimal starvation. plasma fibronectin levels drop rapidly and then with refeeding particularly on a CHO rich diet the levels are rapidly restored. ***[Yoder et al., (1983)]*** .

AIM OF WORK

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The aim of this work was to assess the value of measuring the fibronectin levels in plasma of malnourished infants and to compare it with normal infants of the same age group and see the effect of refeeding to evaluate it as a new nutritional parameter and compare it with serum albumin.

REVIEW OF LITERATURE

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FIBRONECTIN

HISTORICAL PERSPECTIVE:

The term fibronectin describes a family of structurally and immunologically related high molecular weight glycoproteins that are present throughout the body [**Mosesson & Amrani, 1980**].

Prior to the suggestion of the name fibronectin [**Kuusela et al., 1976**] the protein in its various forms had been designated by a variety of terms, including: Large external transformation sensitive protein (LETS) [**Hynes & Bye, 1974**], soluble fibroblast antigen (SF-antigen) [**Ruoslahti & Vaheri, 1974**], cell surface protein (CSP) [**Yamada & Weston, 1974**], cell adhesion factor (CAF) [**Pearlstein, 1976**], galactoprotein a [**Gahmberg et al., 1974**] and Z [**Blumberg & Robbins, 1975**] cold insoluble globulin (CIg) [**Chen & Mosesson, 1976**] [**Morrison et al., 1948**], opsonic protein, [**Saba, 1970**] cell spreading factor [**Grinnell, 1976**] and anti-gelatin factor [**Wolff et al., 1967**].

At present, there appears to be widespread recognition of the need for a single general designation for all forms of the protein as well as general acceptance of the term Fibronectin [**Mosesson & Amrani, 1980**].

Two forms of fibronectin have been characterized: a soluble form in blood and other body fluids and another insoluble form is present on the surface of cells, in extracellular spaces of connective tissue and as a component of basement membrane [**Mosesson & Amrani, 1980**] and [**Ruoslahti et al., 1981**].